

Listing of the Claims

1. (currently amended) A method of identifying bacteria, comprising:
 - a) providing:
 - i) amplified genomic sequences from a plurality of bacterial species, wherein said amplified genomic sequences are arrayed on a solid support so as to create a plurality of arrayed elements,
 - ii) labeled target DNA from a test bacteria of interest, wherein said labeled target DNA is labeled with a fluorescent dye and
 - iii) labeled reference DNA from at least four strains of reference bacteria, wherein said reference bacteria are members of the group consisting of said plurality of bacterial species, wherein said labeled reference DNA is labeled with a fluorescent dye;
 - b) ~~co~~-hybridizing said target DNA and said reference DNA ~~to said arrayed elements in a single step~~ to produce a hybridization pattern on said plurality of arrayed elements, wherein each hybridized target DNA in said hybridization pattern has a fluorescent target signal, and each hybridized reference DNA in said hybridization pattern has a fluorescent reference signal; and
 - c) calculating the hybridized target DNA fluorescent dye signal and ~~to~~ reference DNA fluorescent dye signal ~~hybridization ratio~~ at each array element to determine the identity of said test bacteria.
2. (original) The method of claim 1, wherein said test bacteria are from a sample obtained from a subject.
3. (original) The method of claim 1, wherein said test bacteria are pathogenic organisms.
4. (original) The method of claim 1, wherein said test bacteria are environmental isolates.
5. (original) The method of claim 1, wherein said solid support is a microchip.

6. (original) The method of claim 1, wherein said calculating comprises statistical analysis.

7. (cancelled)

8. (original) The method of claim 1, further comprising the step of producing hybridization profiles of said test and reference bacteria.

9. (currently amended) A method of identifying bacteria, comprising:

- a) providing:
 - i) amplified genomic sequences from a plurality of bacterial species, wherein said amplified genomic sequences are arrayed on at least one microchip, so as to create a plurality of arrayed elements,
 - ii) labeled target DNA from a test bacteria of interest, wherein said labeled target DNA is labeled with a fluorescent dye and
 - iii) labeled reference DNA from at least four strains of reference bacteria, wherein said reference bacteria are members of the group consisting of said plurality of bacterial species; wherein said labeled target DNA is labeled with a fluorescent dye;
- b) ~~co~~-hybridizing said target DNA and said reference DNA ~~to said arrayed elements in a single step~~ to produce a hybridization pattern on said plurality of arrayed elements, wherein each hybridized target DNA in said hybridization pattern has a fluorescent target signal, and each hybridized reference DNA in said hybridization pattern has a fluorescent reference signal;
- c) calculating the hybridized target DNA fluorescent dye signal and to reference DNA fluorescent dye signal ~~hybridization ratio~~ at each array element to determine the identity of said test bacteria.

10. (original) The method of claim 9, wherein said test bacteria are from a sample obtained from a subject.

11. (original) The method of claim 10, wherein said test bacteria are pathogenic organisms.

12. (original) The method of claim 9, wherein said test bacteria are environmental isolates.

13. (original) The method of claim 9, further comprising the step of producing hybridization profiles of said test and reference bacteria.

14. (original) The method of claim 9, wherein said calculating comprises statistical analysis.

15-21. (cancelled)